MISSOURI BOTANICAL GARDEN BULLETIN

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Continuation of St. Louis Herb Society *Bulletin*

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COVER: The native wild hyacinth *(Camassia scilloides)* flowering in the Mausoleum grounds. Planted in the ivy, which helps conceal the dying leaves when blooming time is past, it is very much at home. Its pale gray-blue flowers make an attractive display in early May.

NOTE: The St. Louis Herb Society not only turned in enough copy for an entire number of the BULLETIN (May, 1956) but several articles and a number of shorter notes remain to be published. Mrs. Klippel's and Mrs. Anderson's contributions appear in this issue. Other articles will be published from time to time during next fall and winter.

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Missouri Botanical Garden Bulletin

Vol. XLIV JUNE, 1956 No. 6

HOW TO USE A RIVER

KENNETH A. POOS

Introduction

WHY MUST the story of every river be a tragedy? Inherently it should be a gay or strong or placid story, with the excitement and beauty of the earth its theme. And yet who knows a river that is exultant with its destiny as that destiny has been determined by mankind? Rivers do not object to work, for that is born in them. But with mistreatment they can be disobedient, plotting, and vengeful. With great diligence we have brought out the worst in our streams. The time has come to restore them, to live with them, and to discover the rich sources of inspiration they can contribute to our lives. In St. Louis, we have a perfect place to begin such an adventure. In the following paper, written as a term report for my evening class in Ecology, but deserving much wider circulation, Ken Poos challenges us to take some action.

—ALFRED G. ETTER,
Washington University School of Medicine,
Clopton Experimental Farm, Clarkesville, Mo.

Upstream and Long Ago:—

THE Meramec River has many beginnings, but one of them is best. Meramec Spring is a place of wonderment, a continuing miracle of nature. Water, pure and forever coming from the earth, forever, deep, clear, and cold, it wells up beneath a moss-covered ledge and green eddys swirl down river into a wide gravelly bed. Between screens of willows the river sings softly to itself. The air is sweet with the smell of trees and wet earth, the unforgettable earth with its wildness, rawness, and utter familiarity. Frothy rapids melt into long crescents of smooth water. On summer evenings whip-poor-wills chant their vespers in endless succession from the dark foliage, and large-mouth bass slap at mayflies on the quiet pools.

Upstream much of the Meramec Valley is still a timeless place that contains in its autumn mists the magic of a primitive river, the memory of "old Octobers and tawny Indians in their camping places long ago." Half-asleep on a sunny gravel bar, one does not find it hard to imagine an Indian canoe floating on the water like a willow leaf, or a frontiersman quietly

A gravel bar at a river's bend.

watering his sweated horse in the shade beside some ford.

From Paradise to Problem Child:—

These illusions vanish quickly downstream! Over the two-hundred-year period that white men have used the lower river most that is primitive and beautiful has been destroyed. The automobile, the tractor, the chain-saw, the outboard motor, and the flush toilet have changed the river and changed it mightily. In the early days men stood on the stumps of trees and made speeches about prosperity and rising standards of living. Then they cut more trees and made more speeches and shot more squirrels and gigged more fish and cut more trees and made more speeches. And as they talked the fields got sandier and the fishing poorer. Then men from the city came to the river for recreation. They bought big lots and built clubhouses, and sold lots and built more clubhouses. so that in some places the river bank became lined with clubs. Here a man could relax on holidays and drink a beer and throw the empty bottle in the river. Now this man has sold his "haven" to a new occupant who lives there all year round and not only throws his empty beer cans in the river but all the trash, including the old ice-box and stove. "After all," he says, "it helps keep the bank from washing." The river has indeed changed mightily.

A Trip of Discovery:—

Nowadays taking a trip on the lower Meramec requires a good deal of courage—not the kind the pioneers possessed but the courage to see ugliness and to hope for some change. Put your boat in the river at Highway 66 and motor up past Valley Park and enjoy a visit to St. Louis' playground. The chances are you'll find the river low just as I did when I made the trip recently. This is not just because we've had a drouth, but because the channel has been clogged by years of mismanagement of the river. Tied up beneath the new "66" bridge were

two barges which had been used in its construction. They had been waiting several months for water enough to refloat. All along the banks of the river there was a litter of trash. "No dumping" signs were being ignored as usual. It was apparent that people drive down Yarnell Road and jettison paper bags of cans and garbage from their moving automobiles. Here, in cans and bottles mosquito larvae can live in peace, for fish and birds cannot feed on them as they would in natural areas. Man has created another problem for himself and he will no doubt solve it by calling for airplane spraying of the area; and so the mosquitoes will have their revenge upon the fish and birds.

The next thing to come in sight was a great number of shabby boat docks and boats. Packed closely together they stretch up the west bank to a point two miles above the Vandover bridge, and sometimes line the east shore, too. These docks are privately owned and serve only the interest of the owners and their friends. Public launching facilities are almost non-existent. Everywhere you are met with signs warning trespassers with prosecution. Signs proclaiming no hunting or fishing are also there in numbers as if there were anything to shoot or catch. Even if you find a place to launch your boat, you may still have trouble finding water deep enough to float it. My small motor hit bottom many times. I had to drag my canoe over the Valley Park rapids, and without a load this craft draws only two and a half inches. It is hard to visualize so big a river so feeble.

No Channel, No Fish:—

Even at drouth level this stream once had enough current to keep a channel. That was when trees staked down the alluvial banks along the river, and kept the water working. Now the burden of gravel that has been poured into the valley from cleared lands in the headwaters has nothing to compel it to build banks. The river is lazy, and when it comes to the level stretches of the lower basin it drops its load almost any place. The channel chokes up and the river spreads out over a broad shallow bed, or flows beneath the surface through the porous gravels.

Aside from the fact that this shallowing of the channel makes power-boating risky, it does even more important damage. Water temperatures become more extreme, hotter in summer and frozen more often in winter. This brings a change in the species of fish. Game fish abhor hot water.

There are many other factors working for a change of water temperatures in the lower river. Not the least of these is the fact that many of the trees that once shaded the stream have been cut down. Most of these were willows that hung out over the river's edge. They will be missed, not only by the fish and fishermen they shaded, but by the birds that nested in them—and what of that sweet willow fragrance that is the very breath of a river? The people that cut them probably associated snakes with willows and thought that by cutting the willows they would get rid of the snakes. They were right, but at the same time they

Endless flow of gall

disrupted the whole ecology of the river bank. What they didn't foresee was that they contributed to the loss of wildlife and fish, which they didn't want to lose. In fact, each bird, animal, and fish was a small reason that contributed to a big reason for going to live on the river bank in the first place. The sad part is that these people know the river has changed but they don't know why. I haven't talked with anyone yet who assumed his own personal burden of guilt.

The River's Martyrdom:—

As I continued up stream I heard water running in from a small brook. Under natural conditions I would have had the impulse to throw a dry fly to the spot in belief that a bass or even a trout might be facing into the current of the small stream, waiting for a bug or unsuspecting minnow. This was not the case here. There was a black pipe sticking out of the bank sending filthy, stinking gall into the river in an endless flow. This was the end of the Valley Park sewer system. Less than a mile and a half downstream the city of Kirkwood took it back in and processed it for drinking water until the early 1940's. Because of increasing high costs of filtration and fluctuating river levels they now use a drilled well for their water supply.

Without scientific measurement I would say that the pollution resulting from the sewage effluent is moderate. It has, however, had its effect in changing the aquatic habitat. Any one who has seen whole schools of suckers gobbling raw sewage knows what species is aided by its introduction into the stream. Sewage has become for the suckers a rather constant food supply. Perhaps we ought to be thankful that they are there to help break down the stuff!

There are a number of important reasons why sewage and other waste products can hurt a river. First of all, they can cause a change in the temperature of the water, not only by sheer physical exchange of heat, but more importantly, by chemical heating. Any one who has been in a barnyard in the winter knows that the ground can be frozen everywhere but where deposits of waste are concentrated. This same "heating" occurs when raw sewage is dumped into the river and is broken down there.

Raw sewage reduces the oxygen in a river. Species of fish that require a lot of oxygen have to move out or die.

I was not able to find a single fisherman who knew of any jack-salmon being caught in the fast water below Valley Park in the past three years. Until recent years, this particular fish was caught there in numbers. Oxygen deprivation may well be the reason for its disappearance. Reduced water flow during the last few years brought up the level of pollution. At the same time Valley Park, Kirkwood, and other municipalities within the Meramec watershed are growing rapidly and pumping more sewage into the river. One of the maintenance engineers of the city of Kirkwood admitted that during peak periods it was impossible to process all the sewage and it had to be "turned loose." Valley Park makes no attempt to process its sewage at all. Until the situation changes radically, bass and jack-salmon don't have a chance.

One of the hazards of boating on the Meramec, or for doing anything else on the river for that matter, is the chance of catching a stray bullet. This trip was no exception. I found a group of boys tossing cans and bottles in the water and plinking at them without any regard for wild slugs. They got a big laugh out of it when I told them that the river was not a dump and that they should do their target shooting somewhere else. Time and again I have found people using firearms in crowded areas and few ever showed any respect for the weapons they were using.

If we add all this mismanagement and negligence to the social problems that have arisen in the area, such as the high incidence of drunken brawls, crimes and drownings, we have a picture of the established character of the lower Meramec River basin today. You don't have to be a trained observer to see what is going on there. The tragedy of it all is that the community allows a wonderful natural resource to slip away and be lost because of a deep-seated lethargy!

The Need and the Solution Exist:—

The present recreational value of the Meramec River for the community of Greater St. Louis is negligible, in spite of its proximity to the vast population that sorely needs a clear-water recreational area with impressive natural beauty. Once a natural area is blighted it is increasingly subject to mistreatment. Add to the situation that now exists in the Meramec River basin a decade or two of abuse and the total loss to the community will be appalling. Estimates of population growth in this area leave no doubt about the need for greatly expanded recreation facilities near the city. *The lower Meramec is the place to find them.*

The Meramec meets the chief requirements for a first-class metropolitan park. It is large enough. It is within thirty miles drive of the average user. New highways exist that can carry the traffic. Water, the first goal of the recreationist, is available and with some planning and management it could be clean water in adequate quantity. Remnants of its old beauty still remain, in the quiet waters below still bluffs, and, with encouragement, wildlife could soon add much to the attractiveness of the park.

Recreation First:—

It is vital that *a master plan for the development of the Meramec should put recreation first.* I consider the proposal of a thirty-five hour week for workers a threat both to their own well-being and to that of the nation if there is no place for them to go and enjoy their leisure and employ it constructively. Flood control is important, industrial development is important, but preservation of physical vigor and mental balance of our people supersedes all of them.

Specifically:—

We cannot be too bold in planning for the obvious needs of the future, and for that reason it is felt that the following suggestions are well within the limits of a reasonable project.

1. Pool state and federal and local resources to purchase the entire flood-plain area and such adjacent areas as may be desirable from Tyson Valley Park to the confluence of the Meramec River and the Mississippi.

2. Institute a ten-year master plan that would include the demolition of buildings, cleaning up of litter, and return of the area to its natural condition.

3. Eliminate pollution.

4. Prepare some areas near the river for immediate use while construction proceeds on the remainder.

5. Build concessions which would be available for lease to private interests subject to Park Commission standards.

6. Make the park free to all.

7. Draw up a *diversified recreational program* including:

a. Safe swimming areas that could be supervised, preferably swimming-pools.

b. Picnic areas, including tables and barbecue pits, that afford a view of the river.

c. Ball diamonds, tennis, basket-ball, and volley-ball courts, etc., adjacent to picnic areas.

d. Overnight camping areas for tent campers.

e. Main lodge for nature lectures, motion pictures, and other activities.

f. Summer camps for children.

g. Area for riding concession.

h. Primitive area for study of fauna and flora.

i. A rifle and pistol range that could be supervised by the National Rifle Association. Competitive matches and instruction in proper handling of firearms should be part of the program.

j. A similar program for archers.

k. Waterfront area which would include launching ramps and canoe rentals. Canoe instructions available, and speed limits for boats to be five miles per hour within the park river area.

l. Areas where school children can come and help reforest the area and learn basic principles of land use and ecology first hand. (Motion becomes emotion.)

How About Floods?—

Almost all of these activities could, if properly planned and carried on, be adapted to the conditions that exist in the valley at present without elaborate flood-control structures. With complete control of the flood plain,

It takes courage to see ugliness and hope for a change.

the occupants of the valley would not be claiming high-flood losses and burdening governments and charitable agencies. Further developments in the region would be halted and a hundred future headaches would be cured before they began.

A current proposal to build a barrier dam across the Meramec would be unnecessary. This proposal, by eliminating the Meramec Valley as a reservoir for flood waters, would only aggravate flood conditions on the main Mississippi. It is also a matter of speculation whether such a reservoir as has been proposed would literally hold water since the underlying strata near the confluence of the Meramec and Mississippi rivers are full of solution caverns. In addition, a barrier dam presumably would include locks, thus permitting use of the valley for navigation and consequently encouraging heavy industry. This would be fatal to any recreational development on the river for many reasons. A stable reservoir thus created would also become a liability within a short time by creating extensive marsh areas, drowning timber stands, and by aggravating mosquito problems. Even more important, it would serve as a catch-all for silt and gravel, and within a short time the head of the reservoir would build up so that future floods in the Valley Park region would be beyond anything experienced in the past. With the valley devoted to recreational use, the need for expensive dam building, either upstream or down, would be greatly minimized. Good land use in the water-shed would still be of great importance. In the long run, the program suggested would be a money- and headache-saving plan for governments at all levels. They should be glad to contribute funds for its accomplishment.

Paradise Regained:—

If the lower Meramec River basin were restored to its natural conditions as much as possible, it would give to the community the kind of environment mankind needs: a place where a man can go after work and sit on the quiet river bank in meditation, a place where a boy can fish with his cane pole, and where the family can enjoy the adventure of a camp out. This would be a sanctuary where men and women and children of future generations could come and see a cool flowing stream, singing birds, and green grass. "The leaf, the twig, the unfound door, Return, Return!"

BOOK REVIEWS:—

What's New in Gardening. By Dr. P. P. Pirone, Plant Pathologist at the New York Botanic Garden. 244 pages plus Index 11 pages. Hanover House, New York, 1956. Price $3.50.

THE author planned to report items new to gardeners during the last two years, but has included some of the fundamentals which, though not new, yet have great value now and for many years to come.

The first 110 pages, divided into six chapters, discusses plants under expected titles: Annuals, Perennials, Bulbs, Roses, other Shrubs and Hedges, Trees—shade, ornamental, fruit—, Vegetables, and, happily, House Plants. The remainder of the book, 123 pages, deals with practices involved in the successful culture of plants under the logical, albeit somewhat unusual, titles for such a small book: Plant Propagation, Lawns, Landscaping, Soils and Plant Foods, Growth Regulators, Insects, Diseases and Pests, Garden Gadgets and Equipment.

In general, the book will be found useful by the more experienced as well as the novice gardener. It is certainly worth the price. This reviewer felt the author was sacrificing a great opportunity to give of his knowledge by saying so little about so many subjects. He also feels that the millions who are starting their first garden this year would be quite well repaid if they could have somewhat more detailed information on a smaller number of subjects by the same author. After all, one of the biggest news items in gardening is the large increase each year in the number of gardeners. Or, if we choose to let them learn to walk while we help the more experienced run, then we suggest omission of the extremely short and possibly pithy (certainly containing little meat) paragraphs which are largely made up of four to six lines to mention a few characteristics of some varieties of plants. This deletion would permit the book to give more space to the variations in culture needed by the various climatic zones. It would help, of course, to include as a fundamental the map of Hardiness Zones and to discuss some of the factors by which hardiness is limited, even if trends rather than absolute data must be used. While some statements clearly refer to areas as Midwest, Southern, and Pacific Slope, in general this book does not recognize some of the newer concepts of climate and microclimates. This reviewer feels that listing varieties helps gardeners less than bringing the fundamentals up to date.

The author really puts sparkle into his book when he tells the story of how a paleobotanist described *Metasequoia* from fossil specimens when the tree was believed to be extinct, and how, three years later, by sending $250 to China, bushels of seed of this tree, the Dawn Redwood, came to America and make it possible for thousands of seedlings to be shooting skyward at the rate of 2 to 4 feet each year. [Note those near the path which leads directly south from the old Shaw Residence at the Garden.]

His remarks on Holly are not so fortunate when he says, " . . . one of the most beautiful hollies I have seen is *Ilex altaclarensis*, James G. Esson . . .

resembles the finest English Holly . . . far more striking than any American Holly." It would have been helpful to have the species name so as to furnish some basis for determining probable utility value of the author's nomination. It is no doubt more difficult to maintain an even balance of fact and opinion in a book than in a review. Perhaps the real reason for writing reviews is to call attention to books and really help potential readers to enjoy a new book.

There are several truly exciting spots in the book. One is the story of the discovery of the New Dawn Rose. "How New Plant Varieties Arise" would justify the title of the book. The second subject is given almost nine pages of interesting, fast-moving factual statements which ably presents the concepts and implication of the terms Sporting, Hybridization, Natural Selection, Mutation, Natural Bud Sports and Chimeras! While much of the facts come under the title of worth-while fundamentals, they form a substantial foundation for the very good story of the development of the "Mother of Millions" which the author finally admits is a Male Tree.

The chapter on Propagation is well done while the chapters on Landscaping and Soils and Plant Foods would have been of more value if the author had encouraged the reader to seek and follow local professional advice, either from the agricultural extension agents or professional landscape architects.

When dealing with Growth Regulators, Weed Killers, and Pesticides the author writes of the field in which he is truly an expert. He shows this in his insistence on the integrity of the labels being placed on packages of pesticide by the manufacturer under the watchful and well-informed supervision of the U.S.D.A. He shows quite simply and effectively that pesticides which kill insects are often toxic to warm-blooded animals and that most gardeners who use the millions of pounds each year are not as contemptuous of garden chemicals as are those who are careless in using aspirin, other salicylates, and petroleum products. The author helpfully divides the more than 2,500 trade-marked insecticides, fungicides, and related materials into less than twelve categories. He then discusses the principal ingredients and their suitable application for control of pests from mites to deer and from degree of eradication to the rate of disappearance of residue left on plants. The last chapter deals with Gardening Gadgets. No doubt its information is helpful but hardly exciting, except for one short comment on a soil moisture recorder.

As one lays the book aside and ponders, the thought expressed earlier in this review recurs. Why doesn't he write other books on more limited subjects? The few pen-and-ink drawings and black-and-white illustrations do much the same for the reader as do many of the short paragraphs devoted to really large subjects. The book stimulates; it contains some real food and leaves the reader hungry for more information about how and when to put water on his garden, and what plants would do well in his area. What more should one get for $3.50.

—Clarence Barbre

Vascular Plants of Illinois. By G. N. Jones and G. D. Fuller. 593 pages. University of Illinois Press, Urbana, and the Illinois State Museum, Springfield, Illinois. 1955. Price $10.00.

THIS is a companion volume, particularly treating the ecology and distribution of the plants of Illinois, and is designed to be used with the earlier work, *Flora of Illinois* by G. N. Jones. 1950 (second edition), which contains the keys and descriptive information. The valid names of the plants with author and reference, synonymy, all known references on the occurrence of the species in Illinois, flowering time, general distribution, habitat and distribution in Illinois, with maps, has been compiled for the more than 2400 species which occur in the state. A vegetational map and descriptions of the vegetational divisions including the characteristic plants are given in the introductory matter. An extensive bibliography of works published pertaining to the flora of the state and the principal collectors are given. These are the data. From this and other works like this it is possible to study fundamental problems related to the evolution of plants, their origins and relationships. In Illinois where much of the land has for many years been intensively cultivated there are special problems related to the plants man has eliminiated and introduced. Such matters cannot be adequately discussed until documented facts on the kinds of plants and where they grow are presented. This represents a tremendous amount of work, compiling, recording and checking, and it is done here with much thoroughness.

Some difficulty is encountered in identification of plants due to the limited descriptive matter in the two volumes although a manual supplements this lack. It is a most critical work and will be useful not only for botanists but agriculturists, teachers and students. Gardeners who specialize in native plants rather than exotics will find an unlimited list of horticultural possibilities, among them ten kinds of Dogwood, nine of Phlox, five Mallows, twelve Roses and hosts of Hawthornes and Sunflowers.

—ALICE F. TRYON

Garden Design, Illustrated. By John and Carol L. Grant. University of Washington Press. 145 pp. Seattle, 1954. Price $5.75.

SOME amateur gardeners become so pleased that they can grow anything at all, especially if it is colorful, that they never get beyond this kindergarten stage in gardening. But if they have learned the knack of moving a shrub without the plant feeling the shock of it, and if they have learned what plants grow where, and when and how they bloom, they should be ready for the next stage—which is designing a garden.

Books on garden design are frequently too technical or too ambitious for the amateur. Some of them speak of "building" a garden, which brings up visions of surveys, blue-prints, construction, and probably a greater outlay of time and money than most dirt gardeners have. Grants' "Garden De-

sign" is not that kind of a book. As the authors say in their introduction: "The purpose of this book is not to outline a cut-and-dried approach to garden design . . . rather to open up vistas of possibilities through the understanding of naturalistic principles." It has no text-book attributes but is written with simplicity and charm. It can be enjoyed by all garden lovers, whether they grow plants or just walk through them. The authors have been successful in putting their lessons across by illustrations—plans, photographs, and anecdotes. Most of the gardens illustrated are in the Pacific Northwest, so the planting could not be exactly duplicated here. However, the principles of design are the same no matter what the geography, and with a little imagination a middle-western shrub or tree could be used to give the same landscape effect as the northwestern one suggested.

Many people think that a designed garden means a formal garden but the authors dispose of that in a few words in the first chapter. What the book does is to help the beginner adapt the arrangement of living material to the site, to make the planting appear to have happened rather than designed. If you want your garden to have a naturalistic look, which most amateurs strive for, read the chapters twice on Naturalistic Character, Scale, and on Foundation Planting. Color, Drifts ("planting with the wind"), Contours and Curves are also explained and illustrated. One chapter takes up a specific example—a moderately large house on a 60 × 100 foot lot—and tells us in words and pictures the landscape problems connected with it and how they were met.

If the beginner only looks at the 65 illustrations in this book he will learn something about design, and the chances are that reading it might arouse a spark of ambition to make his back-yard more attractive—maybe even to make it a "*garden*".

—Nell C. Horner

Cities in Evolution. By Patrick Geddes. xxxi + 241 pp. New and revised edition. Oxford University Press. New York, 1950. Price $3.75.

We scientists are an ignorant lot of people. Until I was asked to review this book I had never read a word by Sir Patrick Geddes and was familiar with only the most fleeting references to his career. I had no idea that he was trained as a botanist and only the haziest notions as to his professional history. Yet I do read widely in a haphazard, undisciplined sort of way and part of my technical training was in England. I have therefore had a better chance than most present-day American scientists to have blundered across his trail somehow, in a book or at an exhibition or in conversation. That it is a trail still worth coming upon (whether accidentally or by design) will be clear to any thoughtful person who goes through this book. Some of the best of his writing is attractively brought together with thumb-nail biographical references and a selection of illustrative material from one of his big exhibitions, the whole effectively integrated with editorial com-

ment and a few personal recollections.

Geddes had a genious for seeing large complicated problems as a whole and a gift for communicating these insights with apt phrases:

> "Coal will still last a long time, and cotton might expand accordingly, but water is the prime necessity after air itself; and, unlike it, is limited in quantity. Food can be brought for almost any conceivable population as long as ships can sail the seas, and we have the wherewithal to buy; famine one can survive for months; total starvation even for weeks; but without water we can last barely three days . . . those innumerable costermongers' barrows of cheap and enormous bananas, which range through the poorer streets of New York, and grimly suggest a possible importation of tropical conditions, towards the maintenance and multiplication of an all too cheap proletariat . . . Thus to take only one of the very foremost of our national luxuries, that of getting—more or less—alcoholized, this has been vividly defined in a real flash of judicial wisdom as 'the quickest way of getting out of Manchester'."

He was quite as eloquent in his original field of Botany. Here are two excerpts from his last official lecture at Dundee, and remember, he did not write this; it was taken down by one of his audience.

> "How many people think twice about a leaf? Yet the leaf is the chief product and phenomenon of Life: this is a green world, with animals comparatively few and small, and all dependent upon the leaves. By leaves we live. The world is mainly a vast leaf-colony, growing on and forming a leafy soil, not a mere mineral mass; and we live not by the jingling of our coins but by the fullness of our harvests . . . An Assyrian sculptor admired this Acanthus leaf, and modelled it; and it has been copied ever since, and by all the schools, till we are weary of it. In each great period of design, new plants have been observed and used by artists; but here in the garden around us there is a whole world of beauty for designers to choose from—only the edge of which has been touched."

This same report of his final lecture gives us echoes of quite another matter, Geddes' relationships with his own university where he was nominally professor of botany, though by the terms of his appointment he was required to be in residence only one term a year and the rest of the time was free to write or to travel as he wished. We are told that though reporters were present at the final lecture and a good many townspeople, there was little in the papers the next day. Even more significantly, the faculty of the college was absent and its governing body too, and this was a matter of comment among those who did attend. Even though Dundee had given Geddes a professorship when he had been passed over at Edinburgh as too unorthodox, thirty years of world tours and exhibitions here and there, of taking his students through gardens and woods rather than to lecture indoors, had made him somewhat of a truant in his own university. One notes in his own lecture an ironic reference to Dundee as "this city of marmalade," and his description of the botany field trips of other professors as "week-end airings conducted by a sort of academic nursemaid given to pedantic language." Somewhere in this area is the nub of the Geddes story. He was eloquent to the point of genius, and of all native endowments, none more than eloquence has the capacity of bringing special problems in its train. A little eloquence will help almost any man. A shower of it and the world wants to hear; it is difficult to get on with one's regular work, however much one may wish to do so. Privacies are invaded, the ordinary schedules

of daily life and work are upset; jealousies are multiplied, one's whole career is thrown out of balance. Read Whistler's "Ten O'clock Lecture" in *The Gentle Art of Making Enemies* for a waspish account of the problems which come with such gifts. Eloquence gives us the power to corrupt others whether we mean to or not and ultimately to corrupt our own ends. No gift requires greater wisdom to use cannily. Geddes was warm-hearted, imaginative, and greatly eloquent. How effectively did he deal with the special problems brought upon him by his own genius?

—EDGAR ANDERSON

THYME

BOTANICALLY, the genus Thymus is a ragbag, all jumbled together, so that names and species mean little. Plants range from a low, creeping true Mother-of-Thyme to a woody, bushy type, which is almost shrubby. Blossoms may be lavender, blue, pink or even red. The average height is six to eight inches, but varies in either direction. Flowers are in spikes, and are so tiny one can barely distinguish parts—only the spike and color. The plants grow in mats or mounds when given plenty of spreading room, sunshine, and a well-drained location.

Seeds of Thyme are round and very tiny. Mix with sand to sow thinly on gravel, chat or even cinders, or in a very well-drained spot where the soil is not too rich. A slope is fine. Water well at first, until plants are well established. Plants may also be propagated by root division.

Medicinally, Thyme is one of the few herbs whose use has not declined in modern times. Extracting the oil is still big business. Thyme is strongly germicidal, with an action resembling that of carbolic acid, but stronger and less irritant to wounds. It is used to medicate surgical dressings, in anaesthetics, in gargles and mouth washes, as a sedative for coughs and bronchitis. It yields three essential oils: cymene, thymene, and thymol. Thymol is most used.

In cooking, Wild Thyme is the mildest, but all are useful in binding herb mixtures for soups and salads. The Romans used it for flavoring cheese and liqueurs. Spanish people infuse it in the pickle for preserving olive. Thyme is a distinct addition to pea or bean soups, tomato juice, stuffings, potato salad. Lemon Thyme makes good tea and is good cut fresh in fruit salad.

Armenian Dolma: Grind meat from lamb shoulder. Rub bowl with onion or grate one onion to put into meat. Add three teaspoons of dry Thyme. Cover bowl and let stand for several hours. Add a half-cup of uncooked rice. Add tomato sauce to moisten. Wrap in cabbage or grape leaves. Steam 1½ hours. Serve with wedge of lemon.

Lemon Thyme Vinegar: Heat a good wine vinegar until warm but not boiling. Pour into bottles in which are some bruised Lemon Thyme sprigs. Let stand at least six weeks.

—DOROTHY ANDERSON

PARKINSON, 1640

BASIL

BASIL is a native of India. The derivation of the name is the subject of much controversy. According to some sources it comes from the Greek *basilikon* meaning "kingly", because, as Parkinson says, "the smell thereof is fit for a king's house." Others attribute it to a shortened version of "baselisk", a fabulous creature that could kill with a look. This might have come from the old herbalists' association of Basil with scorpions or because it is under the zodiacal sign of the Scorpion. It was also considered a symbol of hate in some countries. Quite to the contrary and much more in keeping with its delightful nature is the Italian tradition that Basil is symbolic of love.

Basil is a plant that can offer you everything from a variety with such religious significance that no true believer in India would be without it for a moment, to a deep purple plant that goes equally well in the salad or the centerpiece.

There are at least 35 varieties of Basil; however, the following varieties are the ones more generally used.

Ocimum basilicum:

Sweet Basil is the best-known variety of the herb. Its narrow, light green, ovate leaves emit a strongly clove-like perfume when crushed. Its square stems reach a height of 30 inches, topped with whorls of small white blooms.

Lettuce Leaf is a taller form with large, often curled leaves. The blossoms are more compactly arranged.

Purple Leaf is a tall form with large, deep purple leaves and pink flowers.

Ocimum minimum:

Appears with green leaves and white flowers and also with purple leaves and purple flowers. These are compact little bushes about a foot high.

Lemon Basil is a more recently introduced variety with more ovate, lighter green leaves. It has a decidedly citrous odor.

Ocimum sanctum:

Tulasi, or Sacred Basil, is a holy plant in India. To the Hindus it is a protector from evil and a key to Heaven. Members of that religion must be adorned with a sprig of Basil when dying. A plant of Basil stands on the altar of each Brahmin household.

Sacred Basil is easily distinguishable from other Basils by its hairy, heavily veined, roundly ovate leaves and its strong pungency. The flowers are pinkish with orange stamens.

Basil's culture requirements are a fairly rich loam, full sun, and adequate moisture. It can be sown in the open after the ground is warm. It germinates quickly and transplants readily at any time after four true leaves appear. Being a native of warm countries, it likes the hot nights and humid days of midsummer and is especially well adapted to our St. Louis climate.

Basil seems to have a special affinity for tomato and egg dishes. It is used fresh or harvested and dried, or made into vinegar which adds a real zest to French dressing or tomato cocktails.

—ALLENE K. KLIPPEL

GRASS EXHIBITS AT THE GARDEN

By MID-MAY the Garden's turf and ground-cover program advanced another step with the installation of simple semi-permanent signs calling attention to the kinds of grass and the effects on them of various treatments such as fall fertilizing and high mowing.

Lawn grass in this part of the Midwest is a very special problem. We are too far south for northern grasses but too far north for all but a few of the southern or "hot weather" grasses. There is no perfect grass for St. Louis; Kentucky Bluegrass is still the best for this region but it has to be carefully managed, particularly in extremely hot weather (when it goes dormant) or during long-continued droughts.

During the last two seasons various areas with some bluegrass in them have been allowed to go to seed at the Garden in an attempt to seed-in strains which were best adapted to a city garden. Last fall all the turf areas were heavily fertilized as soon as the nights turned cool. Both of these policies have paid off well and there is now more and better-looking bluegrass at the Garden than for many years. Most of it is being mowed high, at about four inches, since low clipping removes much of the leaf surface on which its health depends.

The new signs were designed, constructed, and donated to the Garden by Mr. Paul Hale of the Garden's Horticultural Council. They are of light metal and are held a few inches above the turf but are slanted so that they are easy to read. The actual sign is lettered free hand with India Ink and then weatherproofed with a plastic spray. They are so simple and easy to care for that they can be removed during mowing and can be changed from season to season or year to year.

Mr. Hale is now preparing a set of smaller signs to identify the most important turf weeds as well as some of the lesser-known grasses. This is all part of a long-time program for better lawns in the St. Louis area. Though grasses all look much alike, they differ markedly in their requirements, their times and patterns of growth, and their response to low or high mowing, to spring or fall fertilizing, to summer sprinkling and to heavy irrigation during droughts. Not until at least a handful of gardeners have gotten to know and part way to understand the lawn grasses of St. Louis can we hope to have the best possible lawns in this community. Golf enthusiasts have demonstrated what can be done for the management of putting greens and fairways; some of these special grasses and cultural practices can successfully be translated for the average homeowner but not very often.

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SOME FACTS ABOUT SHAW'S GARDEN

The Missouri Botanical Garden (the official name chosen by Mr. Shaw) carries on the garden established by Henry Shaw over a century ago at TOWER GROVE, his country home. It is a private institution and has no support from city or state. The old stone walls and cast-iron fences, the Linnaean House, the Museum, the Mausoleum, and the TOWER GROVE mansion all date from Mr. Shaw's time. Since his death, as directed in his will, the Garden has been in the hands of a Board of Trustees who appoint the Director.

The Garden is open every day in the year (except New Year's and Christmas) from nine A. M. until seven P. M. (April to November) and until six (November to April) though the greenhouses close at five. TOWER GROVE, itself, Mr. Shaw's old country home, is open from one until four. The Garden is nearly a mile long and has several entrances. The Main Entrance, the one used by the general public, is at Tower Grove and Flora Place on the Sarah bus line (No. 42). The Park Southampton buses (No. 80), direct from downtown, pass within three blocks of this entrance and stop directly across the street from the Administration Building at 2315 Tower Grove Avenue. The latter is the best entrance for students, visiting scientists, etc. It is open to such visitors after 8:30 a. m., but is closed on Saturdays, Sundays, and holidays. There is a service entrance on Alfred Avenue, one block south of Shaw Avenue.

Since Mr. Shaw's time an Arboretum has been developed at Gray Summit, Mo., adjacent to State Highways 50 and 66. It is open every day in the year and has two miles of auto roads as well as foot trails through the wild-flower reservation. There is a pinetum and an extensive display of daffodils and other narcissi from March to early May.